Remarks

In view of the above amendments to the claims and the following discussion, the applicants submit that none of the claims now pending in the application are anticipated under the provisions of 35 U. S. C. § 102, or obvious under the provisions of 35 U. S. C. § 103. Furthermore, the applicants also submit that the claims now pending in the application satisfy the requirements of 35 U. S. C. § 112. Thus, the applicants believe that all of these claims are in allowable form.

REJECTIONS

A. 35 U. S. C. § 112

1. Claims 3 and 10

Claims 3 and 10 stand rejected under 35 U. S. C. § 112, second paragraph, as having insufficient antecedent basis. In particular, for claim 3, the Examiner has indicated that at line 3, the phrase "said side" lacks proper antecedent basis. Applicants have amended claim 3 to replace the phrase "said side" with the phrase "a side".

Also, for claim 10, the Examiner has indicated that at line 4, the phrase "the general direction" lacks proper antecedent basis. Applicants have amended claim 10 to replace the phrase "the general direction" with the phrase "a general direction".

In view of these amendments to claims 3 and 10, the basis for the Examiners' rejection thereof has been removed. Therefore, it is respectfully requested that this rejection be withdrawn.

B. 35 U. S. C. § 102

1. Claims 1-4 and 7-11 are not anticipated by Mitsutake

Claims 1-4, 6, 8 and 10-11 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Mitsutake (JP Patent Application JP 02-153338 published June 13, 1990). The applicants submit that these claims are not anticipated by this reference.

The core of the invention described in claim 1 is to use a Fresnel type lens having prismatic elements on both sides, wherein the first side is used for the collimation of a non-collimated beam according to a first direction and the second side is used to convert the first collimation direction into a second collimation direction. Therefore, the prismatic elements of the 1st side should differ from each other.

Claim 1 is directed to a projection display device comprising:

- means (6) of projecting an image onto a screen (10) having an output axis called a main axis (AA');
- the screen (10) comprising at least one optical plate (12; 32),

wherein the optical plate (12; 32) comprises:

- on a first side, a first set of different optical elements (14; 34) designed to bend rays (RI) of a non-collimated beam (*see*, the plurality of rays R_I that are <u>not parallel</u> on figures 1, 2, 4) received from said image projection means into a collimated (as the rays of this beam are <u>all parallel</u> to a first direction – see θ_{int} as a fixed angle : page 5, line 37 – page 7, line 9 – page 10, lines 11-12) beam of rays (R_{int}) that are essentially parallel to a first direction in a plane containing the main axis (AA'),
- on a second side, a second set of prismatic elements (16, 36) with identical section or a holographic device for bending said beam in a second direction (R_C) different from the first direction (R_{int}).

Mitsutake discloses a projection display device comprising:

- means (6) of projecting an image onto a screen (11 and 12) having an output axis called a main axis (see line just below the theta in fig.1);
- the screen (b1 and 15) comprising at least one optical plate (bi and see fig.4),

wherein the optical plate (see fig.4) comprises:

- on a first side, a first set of optical elements (see prismatic elements on 21) designed to bend rays (see fig.4 wherein the rays incident on 21 are bent) of a non-collimated beam (see, the plurality of rays impinging the screen b1 on fig. 4 that are indeed not parallel) received from said image projection means into a beam of rays (*see*, figure 4, where only one ray is represented) *that are essentially parallel to a first direction in a plane containing the main axis*,
- on a second side, a second set of prismatic elements (see prismatic element on 22) with identical section or a holographic device for bending said beam in a second direction different from the first direction (see fig.4).

There is no indication in Mitsutake showing that the rays received from said image projection means, after being bent by different optical elements (21) of the first set, make a collimated beam of rays that are essentially parallel to a first direction in a plane containing the main axis. As, in figure 4, the bending of only one ray by only one optical element of the first set is shown, it is not possible to infer from this figure any parallelism between rays that are bent by different optical elements of this first set. Consequently, as claim 1 is not disclosed in Mitsutake, claim 1 is patentable over Mitsutake.

Claim 11 recites similar subject matter as that recited in claim 1. Claims 2-4 and 7-10 depend directly, or indirectly, from claim 1. For the same reasons as stated above for claim 1, claims 2-4 and 7-11 are also patentable over Mitsutake.

C. 35 U. S. C. § 103

1. Claim 7 is patentable over Mitsutake

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being upatentable over Mitsutake (JP Patent Application JP 02-153338 published June 13, 1990). The applicants submit that this claim is not rendered obvious by this reference.

Claim 7 is directed to the projection display device of claim 1, wherein the optical elements (34) of the first set each include a side (38) designed to reflect the rays (R_I) from the source in the first direction (R_{int}).

The core of the invention described in claim 7 is to use a Fresnel type lens having prismatic elements on both sides, wherein the first side is used for the collimation of a non-collimated beam according to a first direction and the second side is used to convert the first collimation direction into a second collimation direction. Therefore, the prismatic elements of the 1st side should differ from each other.

Claim 7 is directed to a projection display device comprising:

- means (6) of projecting an image onto a screen (10) having an output axis called a main axis (AA');
- the screen (10) comprising at least one optical plate (12; 32),

wherein the optical plate (12; 32) comprises:

- on a first side, a first set of different optical elements (14; 34) designed to bend rays (RI) of a non-collimated beam (*see*, the plurality of rays R_I that are <u>not parallel</u> on figures 1, 2, 4) received from said image projection means into a collimated (as the rays of this beam are <u>all parallel</u> to a first direction – see θ_{int} as a fixed angle : page 5, line 37 – page 7, line 9 – page 10, lines 11-12) beam of rays (R_{int}) that are essentially parallel to a first direction in a plane containing the main axis (AA'),

- on a second side, a second set of prismatic elements (16, 36) with identical section or a holographic device for bending said beam in a second direction (R_C) different from the first direction (R_{int}).

Mitsutake does not disclose that:

- (1) the rays received from said image projection means, after being bent by different optical elements (21) of the first set, make a collimated beam of rays that are essentially parallel to a first direction in a plane containing the main axis;
- (2) the optical elements (21) of the first set each include a side designed to reflect the rays of the non-collimated beam in the first direction (R_{int}).

Mitsutake discloses a projection display device comprising:

- means (6) of projecting an image onto a screen (11 and 12) having an output axis called a main axis (see line just below the theta in fig.1);
- the screen (b1 and 15) comprising at least one optical plate (bl and see fig.4),

wherein the optical plate (see fig.4) comprises:

- on a first side, a first set of optical elements (see prismatic elements on 21) designed to bend rays (see fig.4 wherein the rays incident on 21 are bent) of a non-collimated beam (*see*, the plurality of rays impinging the screen b1 on fig. 4 that are indeed not parallel) received from said image projection means into a beam of rays (*see*, figure 4, where only one ray is represented) *that are essentially parallel to a first direction in a plane containing the main axis*,
- on a second side, a second set of prismatic elements (see prismatic element on 22) with identical section or a holographic device for bending said beam in a second direction different from the first direction (see fig.4).

- There is no indication in Mitsutake showing that the rays received from said image projection means, after being bent by different optical elements (21) of the first set, make a collimated beam of rays that are essentially parallel to a first direction in a plane containing the main axis. As, in figure 4, the bending of only one ray by only one optical element of the first set is shown, it is not possible

to infer from this figure any parallelism between rays that are bent by different optical elements of this first set.

Even if, in figure 5 of Mitsutake which the Examiner refers to, there are optical elements (25) which include a side designed to reflect the rays of the non-collimated beam, these optical elements (25) does not belong to the first set but to the second set.

- Moreover, in figure 5 of Mitsutake, such a reflection is NOT performed in said first direction, i.e. in direction c1-d1, but in a totally different direction (see dashed lines d1-d2 in figure 5).

Therefore, claim 7 is patentable over Mitsutake.

2. Claim 5 is patentable over Mitsutake in view of Van Breenmen

Claim 5 stands rejected under 35 U.S.C. § 103(a) as being upatentable over Mitsutake (JP Patent Application JP 02-153338 published June 13, 1990) in view of Van Breenmen (U. S. Patent 4,482,206 issued November 13, 1984). The applicants submit that this claim is not rendered obvious by the combination of these references.

The core of the invention described in claim 5 is to use a Fresnel type lens having prismatic elements on both sides, wherein the first side is used for the collimation of a non-collimated beam according to a first direction and the second side is used to convert the first collimation direction into a second collimation direction. Therefore, the prismatic elements of the 1st side should differ from each other.

Claim 5 is directed to a projection display device comprising:

- means (6) of projecting an image onto a screen (10) having an output axis called a main axis (AA');
- the screen (10) comprising at least one optical plate (12; 32),

wherein the optical plate (12; 32) comprises:

- on a first side, a first set of different optical elements (14; 34) designed to bend rays (RI) of a non-collimated beam (*see*, the plurality of rays R_I that are not parallel on figures 1, 2, 4) received from said image projection means into a collimated (as the rays of this beam are all parallel to a first direction – see θ_{int} as a fixed angle : page 5, line 37 – page 7, line 9 – page 10, lines 11-12) beam of rays (R_{int}) that are essentially parallel to a first direction in a plane containing the main axis (AA'),
- on a second side, a second set of prismatic elements (16, 36) with identical section or a holographic device for bending said beam in a second direction (R_C) different from the first direction (R_{int}).

Mitsutake discloses a projection display device comprising:

- means (6) of projecting an image onto a screen (11 and 12) having an output axis called a main axis (see line just below the theta in fig.1);
- the screen (b1 and 15) comprising at least one optical plate (bi and see fig.4),

wherein the optical plate (see fig.4) comprises:

- on a first side, a first set of optical elements (see prismatic elements on 21) designed to bend rays (see fig.4 wherein the rays incident on 21 are bent) of a non-collimated beam (*see*, the plurality of rays impinging the screen b1 on fig. 4 that are indeed not parallel) received from said image projection means into a beam of rays (*see*, figure 4, where only one ray is represented) *that are essentially parallel to a first direction in a plane containing the main axis*,
- on a second side, a second set of prismatic elements (see prismatic element on 22) with identical section or a holographic device for bending said beam in a second direction different from the first direction (see fig.4).
- There is no indication in Mitsutake showing that the rays received from said image projection means, after being bent by different optical elements (21) of the first set, make a collimated beam of rays that are essentially parallel to a first direction in a plane containing the main axis. As, in figure 4, the bending of

only one ray by only one optical element of the first set is shown, it is not possible to infer from this figure any parallelism between rays that are bent by different optical elements of this first set.

Van Breenmen discloses an optical plate (FIG. 5) having symmetry of revolution about the main axis. There is no indication in Van Breenmen that the rays received from said image projection means, after being bent by different optical elements (21) of the first set, make a collimated beam of rays that are essentially parallel to a first direction in a plane containing the main axis.

Therefore, claim 5 is patentable over Mitsutake in view of Van Breenmen.

3. Claim 8 is patentable over Mitsutake in view of Mitsutake

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being upatentable over Mitsutake (JP Patent Application JP 02-153338 published June 13, 1990) in view of Mitsutake (U. S. Patent 5,208,620 issued May 4, 1993). The applicants submit that this claim is not rendered obvious by the combination of these references.

The core of the invention described in claim 8 is to use a Fresnel type lens having prismatic elements on both sides, wherein the first side is used for the collimation of a non-collimated beam according to a first direction and the second side is used to convert the first collimation direction into a second collimation direction. Therefore, the prismatic elements of the 1st side should differ from each other.

Claim 8 is directed to a projection display device comprising:

- means (6) of projecting an image onto a screen (10) having an output axis called a main axis (AA');
- the screen (10) comprising at least one optical plate (12; 32),

wherein the optical plate (12; 32) comprises:

- on a first side, a first set of different optical elements (14; 34) designed to bend rays (RI) of a non-collimated beam (*see*, the plurality of rays R_I that are not parallel on figures 1, 2, 4) received from said image projection means into a collimated (as the rays of this beam are all parallel to a first direction – see θ_{int} as a fixed angle : page 5, line 37 – page 7, line 9 – page 10, lines 11-12) beam of rays (R_{int}) that are essentially parallel to a first direction in a plane containing the main axis (AA'),
- on a second side, a second set of prismatic elements (16, 36) with identical section or a holographic device for bending said beam in a second direction (R_C) different from the first direction (R_{int}).

Mitsutake discloses a projection display device comprising:

- means (6) of projecting an image onto a screen (11 and 12) having an output axis called a main axis (see line just below the theta in fig.1);
- the screen (b1 and 15) comprising at least one optical plate (bi and see fig.4),

wherein the optical plate (see fig.4) comprises:

- on a first side, a first set of optical elements (see prismatic elements on 21) designed to bend rays (see fig.4 wherein the rays incident on 21 are bent) of a non-collimated beam (see, the plurality of rays impinging the screen b1 on fig. 4 that are indeed not parallel) received from said image projection means into a beam of rays (*see*, figure 4, where only one ray is represented) *that are essentially parallel to a first direction in a plane containing the main axis*,
- on a second side, a second set of prismatic elements (see prismatic element on 22) with identical section or a holographic device for bending said beam in a second direction different from the first direction (see fig.4).

- There is no indication in Mitsutake showing that the rays received from said image projection means, after being bent by different optical elements (21) of the first set, make a collimated beam of rays that are essentially parallel to a first direction in a plane containing the main axis. As, in figure 4, the bending of

only one ray by only one optical element of the first set is shown, it is not possible to infer from this figure any parallelism between rays that are bent by different optical elements of this first set.

Mitsutake (US5,208,620) discloses an optical plate having a second direction that forms an angle greater than or equal to 10^0 with the first direction. There is no indication in Mitsutake (US5,208,620) that the rays received from said image projection means, after being bent by different optical elements (21) of the first set, make a collimated beam of rays that are essentially parallel to a first direction in a plane containing the main axis.

Therefore, claim 8 is patentable over Mitsutake in view of Mitsutake (US5,208,620).

CONCLUSION

Thus, the applicants submit that none of the claims now pending in the application are anticipated under the provisions of 35 U. S. C. § 102, or obvious under the provisions of 35 U. S. C. § 103. Furthermore, the applicants also submit that the claims now pending in the application satisfy the requirements of 35 U. S. C. § 112. As such, the applicants believe that all of the claims now pending in the application are in allowable form and this application is presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring a rejection of any of the claims now pending in the application, it is

requested that the Examiner telephone Ms. Patricia A. Verlangieri, at (609) 734-6867, so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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